

DETAILED ACTION

1. The Amendment to the Specification filed 3/06/08 has been entered.

Drawings

2. Figure 8 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Examiner's Amendment

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
4. Authorization for this examiner's amendment was given during a telephone interview with Tomoko Nakajima on 7/11/08.

The application has been amended as follows:

5. The Abstract has been replaced with the following:

--The present invention provides an electric power system for stably supplying power while suppressing corona discharge generating ultraviolet radiation which may cause health problems in human beings. The corona discharge start voltage varies with the weather. Data on weather forecasts is inputted for each district at certain times so as to calculate the corona discharge estimated start voltage for each transmission line with a computer. If the calculation result predicts start of corona discharge at normal transmission voltage, the transmission voltage of the line is lowered or power transmission through the transmission line is stopped. --

6. The text of the Specification from Page 12 Line 19 to Page 14 Line 19 has been replaced with the following:

-- I cannot find documents regarding suppressing corona discharge for stopping ultraviolet light generation. The following several documents about suppressing corona discharge for the prevention of damaging power apparatuses, prevention of broadcasting noise, and reducing corona power loss :

Patent document 1: Japanese Unexamined Patent Application Publication No. H11-038078 ;

Patent document 2: Japanese Unexamined Patent Application Publication No. H10-038957 ;

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Non-Patent Document 1: Japan Electrical Engineering Handbook Sixth Edition, pages 485 to 486, 1005 to 1023, and 1225 to 1226 ;

Non-Patent Document 2: Japan Electrical Engineering, Ionized Gas Discussion, pages 28 to 51, and 103 to 114 ;

Non-Patent Document 3: World Health Organization (WHO) Fact Sheet No. 263, Electromagnetic fields and public health: extremely low frequency fields and cancer ;

Non-Patent Document 4: World Health Organization (WHO) Fact sheet No. 205, Electromagnetic fields and public health: extremely low frequency (ELF) ;

Non-Patent Document 5: World Health Organization (WHO.) Fact sheet No. 261, Protecting Children from Ultraviolet Radiation ;

Non-Patent Document 6: The National Institute for Environmental Studies (NIES), Epidemiologic study on childhood cancers in Japan (1999-2002), by Dr. Michinori Kabuto ;

Non-Patent Document 7: Central Research Institute of Electric Power Industry, CRIEPI Review, No. 47 page 56 ;

Non-Patent Document 8: Central Research Institute of Electric Power Industry, A Study on Audible Noise from AC and DC Transmission Lines, by M. Fukushima ;

Non-Patent Document 9: Central Research Institute of Electric Power Industry, Corona Effects of UHV AC Overhead Transmission Lines, by T. Sasano, S. Tomita, K. Tanabe, Y. Deguchi, and H. Harada ;

Non-Patent Document 10: Maruzen Ltd., Molecular Biology, by Seiichi Tanuma, page 81 ;

Non-Patent Document 11: Muroran Institute of Technology, Decomposition Characteristics of Benzene in Flue Gas by Corona Discharge Plasma, by Kohki Satoh, Nobuyuki Yoshizawa, Hidenori Itoh, Hiroaki Tagashima, and Mitsue Shimosuma ;

Non-Patent Document 12: Tables of Vacuum Ultraviolet Emission Bands of Molecular Nitrogen from 82.6 to 124.2 nm, by J-Y. Roncin and F. Launay, A&A Supplement series, Vol. 128, Mar. 1, 1998, pages 361 to 362 ;

Non-Patent Document 13: Texas Instruments, Use of Spectrograph-based OES for SiN Etch Selectivity and Endpoint Optimization, by F. G. Celii and C. Huffman, et al. ;

Non-Patent Document 14: Health Guidance Manual against Ultraviolet Light, Japan Ministry of The Environment home page ;

Non-Patent Document 15: DHC Shuttpan, Children, Skin and Sun, by Ichihashi Masamitsu ;

Non-Patent Document 16: <http://www.intl-light.com> Light Measurement Handbook, by Alex Ryer ;

Non-Patent Document 17: Oxford University Press, PHYSICAL CHEMISTRY Sixth Edition, by P. W. Atkins. --

7. The text of the Specification (Page 21 Line 10) has been replaced with the following:
-- According to FIG. 2, the processing details of the --

8. The text of the Specification on Page 24 Lines 15-18 has been replaced with the following:

-- Then, it is possible to obtain the same effect as the first embodiment. It is also possible to obtain the same effect as the first embodiment by supplying the computer readable memory device which stores the computer program, on the server which stores the computer program, to an electric power supply company. --

9. The text of the Specification on Page 24 Lines 24-26 has been replaced with the following:

- - shown in Fig. 8. In addition, it is necessary to improve the performance of power system analysis means 10-2 and transmission voltage regulating means 11-2 in the basic structure, as explained hereinafter. --

10. Claim 14 is cancelled.

11. Claim 21 is cancelled.

12. Claim 1 has been replaced with the following:

- - An electric power system comprising:
a weather data input means for inputting weather data, temperature, atmospheric pressure and weather, at predetermined time intervals, in a district of operating transmission lines; a digital processing unit;

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a memory means for storing transmission line data that shows relations between a corona discharge start voltage and weather conditions at each transmission line, and processed data by said digital processing unit;

and a power system analysis means, wherein said digital processing unit calculates the corona discharge start voltage at said each transmission line based on weather forecast data and said transmission line data, if the calculated corona discharge start voltage is lower than a normal transmission voltage of the transmission line, a countermeasure transmission voltage that is recorded in said memory means in advance is selected to set a transmission voltage of the transmission line or stop transmitting electric power on the transmission line, and if the calculated corona discharge start voltage is above the normal transmission voltage of the transmission line, the normal transmission voltage is selected as the set transmission voltage of the transmission line, and wherein said power system analysis means analyzes loads of apparatuses of the power system. - -

13. Claim 13 has been replaced with the following:

- - An electric power system comprising:

a corona discharge detection means for detecting the occurrence of corona discharge at a transmission line;

a digital processing unit wherein said digital processing unit converts information detected by the corona discharge detection means into information which is needed by a superior power system analysis means;

and a transmitter wherein said transmitter transmits said converted information to the superior power system analysis means,

wherein said digital processing unit stops a corona discharge in a short time by lowering a transmission voltage of a transmission line that generates the corona discharge, or stops transmitting electric power in the transmission line when said corona discharge detection means detects a corona discharge, and wherein said power system analysis means adjusts loads of apparatuses in the electric power system, wherein said digital processing unit stores weather conditions in said memory means before and after occurrence of a corona discharge, and changes the transmission voltage to a voltage level before detecting corona discharge, when weather conditions are assumed not to generate a corona discharge. - -

14. Claim 18 has been replaced with the following:

- - A method for operating electric power system suppressing corona discharge from viewpoint of environment, the method comprising:

inputting weather data, temperature, atmospheric pressure and weather at predetermined time intervals in a district of operating transmission lines;

calculating a corona discharge start voltage at each transmission line based on weather forecast data and the transmission line data,

if the calculated corona discharge start voltage is lower than a normal transmission voltage of the transmission line, a countermeasure transmission voltage that is recorded in the memory means in advance is selected to set a transmission voltage of the transmission line, and

if the calculated corona discharge start voltage is above the normal transmission voltage of the transmission line, the normal transmission voltage is selected as the set transmission voltage of the transmission line, and

storing transmission line data and processed data in memory means by a digital processing unit; and

analyzing loads of apparatuses of the power system by a power system analysis means. - -

15. Claim 19, Line 7 has been amended as follows:

After the term “substituting” insert the term --the --.

16. Claim 20 has been replaced with the following:

- - An electric power system operating method comprising:

detecting a corona discharge on a transmission line;

stopping the corona discharge in a short time by lowering a transmission voltage of a transmission line that generates the corona discharge, or stopping transmitting electric power in the transmission line;

adjusting loads of apparatuses in the electric power system;

operating the apparatuses under an adjusted condition for supplying electric power, storing weather conditions in a memory means before and after occurrence of a corona discharge; and changing the transmission voltage to a voltage level before detecting the corona discharge, when weather conditions are assumed not to generate a corona discharge. - -

Reasons for Allowance

17. Claims 1, 12, 13 and 15-20 are allowed.

18. The following is an examiner's statement of reasons for allowance:

Please note that the Shannon reference (US Patent No. 7,157,710) has been disqualified as Prior Art because Applicant has perfected the priority date by providing a certified translation of the Foreign Priority Document.

Although the Granville et al. reference (U.S. Patent No. 5,006,846) discloses a line temperature sensor, temperature sensing circuits, an ambient temperature sensor, and a signal processor and data transmission circuits. This reference taken either alone or in combination with the prior art of record does not disclose an electric power system/ an electric power operating method, including:

(Claims 1, 18) "calculating the corona discharge start voltage at each transmission line based on weather forecast data and said transmission line data, if the calculated corona discharge start voltage is lower than a normal transmission voltage of the transmission line, a countermeasure transmission voltage that is recorded in said memory means in advance is selected to set a transmission voltage of the transmission line, and if the calculated corona discharge start voltage is above the normal transmission voltage of the transmission line, the normal transmission voltage is selected as the set transmission voltage of the transmission line, and analyzing loads of apparatuses of the power system", and

(Claims 13, 20) "stopping the corona discharge in a short time by lowering a transmission voltage of a transmission line that generates the corona discharge, or stopping transmitting electric power in the transmission line; and changing the transmission voltage to a voltage level

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before detecting the corona discharge, when weather conditions are assumed not to generate a corona discharge”,

in combination with the remaining elements and features of the claimed invention.

It is for these reasons that the applicant's invention defines over the prior art of record.

Conclusion

19. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance”.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Ortiz-Rodriguez whose telephone number is 571-272-3766.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Paul L Rodriguez/

Supervisory Patent Examiner, Art Unit 2123